ACC.14
TCT@ACC-i2 | innovation in intervention

A1999
JACC April 1, 2014
Volume 63, Issue 12

Valvular Heart Disease

CARDIAC CHAMBER AND TRICUSPID ANNULUS RELATIONS IN TRICUSPID REGURGITATION THREE-DIMENSIONAL COMPUTED TOMOGRAPHIC ANALYSIS

Poster Contributions
Hall C
Sunday, March 30, 2014, 3:45 p.m.-4:30 p.m.

Session Title: Valvular Heart Disease: Clinical Posters
Abstract Category: 28. Valvular Heart Disease: Clinical
Presentation Number: 1232-342

Authors: *Naohiko Nemoto, John Lesser, Wesley Pedersen, Paul Sorajja, Robert Schwartz, Minneapolis Heart Institute Foundation at Abbott Northwestern Hospital, Minneapolis, MN, USA*

Background: Tricuspid regurgitation (TR) is a potent determinant of long term prognosis in patients with valvular heart disease. Yet relationships among the tricuspid valve (TV) and cardiac chamber anatomy are incompletely characterized. As percutaneous TV repair/replacement is under development, precise definition of TV and associated chamber anatomy is assuming great importance. This study evaluated tricuspid and cardiac chambers using echocardiography and three-dimensional computed tomography (3DCT).

Methods: Echocardiography and 3DCT image data were analyzed in 633 patients. Patients were divided into 2 groups according to echocardiographic TR severity as no TR (Group 1, TR none or mild, n=573) and significant TR (Group 2, TR significant, moderate or severe, n=60). Tricuspid annulus area (TAA) and cardiac chamber dimensions were measured at ventricular mid-diastole.

Results: Differences between groups included age >75 years, presence of left valve disease (LVD) and atrial fibrillation (AF). Patients with significant TR differed by univariate analysis in normalized TAA (n-TAA) and in all cardiac chamber indices (right atrial volume index (RAi), left atrial volume index (LAi), right ventricle volume index (RVi) and left ventricle volume index (LVi)). Multivariate analysis found that n-TAA, RVi, age >75 years, female gender, LVD and AF were independent predictors of significant TR. Optimal threshold values differentiating patients with significant TR by receiver-operating characteristic analysis were: n-TAA (cut off value, area under the curve) 804 mm2/m2 (0.835), RAi 64 ml/m2 (0.814), RVi 73 ml/m2 (0.717), LAi 61 ml/m2 (0.700) and LVi 71ml/m2 (0.602).

Conclusions: TR is associated with significant enlargement of all cardiac chambers. Threshold values for significant TR can be defined statically and may assist with determining need for TR intervention as percutaneous therapies become available.